

Cadmium in blood

Considerable controversy still surrounds the use of cadmium in blood as a biomarker of exposure in the TES pilot study. In the initial review of cadmium, it is stated:

"Recent exposure would also be indicated by an increase in blood cadmium with peak concentrations being reached in several minutes and having a half-life of 15 minutes."

Consequently, a biological half-life of 15 mins for cadmium in blood has been assumed for this biomarker in the pilot study. However, no literature material has been presented to support the claimed half-life of cadmium in blood.

Only limited literature reports the half-life of cadmium in blood obtained for workers with occupational exposure to cadmium who were monitored after cessation of exposure. These studies report mean half-lives of approximately 20.4 months and 31.4 months depending on the initial blood cadmium level [1], and 2 to 3 months [2]. The half-life of cadmium has been described to best fit a two-compartment model with estimated half-life times of 75 to 128 days for the fast component and 7.4 to 16.0 years for the slow component [3].

1. Kelerman, G.R. (1986). Cadmium metabolites in man. *Human Toxicol.*, 5, 91-93.
2. Lauwerys, R.R., Bernard, A.M., Roels, H.A., Buchet, J.-P. (1994). Cadmium: exposure markers as predictors of nephrotoxic effects. *Clin. Chem.*, 40, 1391-1394.
3. Jarup, L., Rogenfelt, A., Elinder, C.G., Nogawa, K., Kjellstrom, T. (1983). Biological half-time of cadmium in the blood of workers after cessation of exposure. *Scand. J. Work Environ. Health* 9, 327-331.